

Treatment of hyperlipidaemia: aims and selection

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Basic rules

- The goals are:
 - Secondary prevention of ischaemic heart disease (IHD). (The most important patient group to be treated are patients with diagnosed IHD.)
 - Decreasing the risk of atherosclerotic arterial disease guided by the total risk (combined effect of risk factors).
- Changing living habits is the primary target in all patients.
- Rule out secondary hypercholesterolaemia before starting drug treatment (serum TSH, fasting blood glucose, urine test).
- The aim of treatment is to maintain
 - serum cholesterol under 5.0 mmol/L
 - serum LDL cholesterol under 3.0 mmol/L (optimally under 2.5 mmol/L). (For calculation see programme 1 of the corresponding full text guideline available on the EBM Web site).
 - serum HDL cholesterol over 1.0 mmol/l
 - serum triglyceride under 2.0 mmol/L
 - serum cholesterol: serum HDL cholesterol ratio under 4.0
- The treatment of a low HDL cholesterol concentration and a high serum triglyceride concentration is probably beneficial at least in patients with non-insulin-dependent diabetes mellitus.
- The serum triglyceride concentration should be under 10 mmol/L, preferably under 5 mmol/L to minimize the risk of pancreatitis.

Patients with ischaemic heart disease

- The risk of myocardial infarction or cardiac death increases sharply with rising serum cholesterol concentrations in patients with IHD.
- The effectiveness of drug treatment has been clearly shown in large statin studies (4S, CARE, LIPID). The target serum cholesterol concentration is below 5.0 mmol/L (LDL cholesterol under 3.0 mmol/L, preferably under 2.5 mmol/L).
- See Table 1 below.

Table 1. Hypercholesterolaemia in patients with ischaemic heart disease

Serum cholesterol (mmol/L)	LDL cholesterol (mmol/L)	Risk of disease progression	Action
5.0 or higher	3.0 or higher	Greatly increased	Improve diet, change living habits, control cholesterol levels in 2 mo. Reduce risk by modifying other risk factors. Drug therapy is always indicated if target levels are not reached.

Patients with other atherosclerotic diseases (cerebrovascular disease, peripheral arterial disease)

- See above.

Symptomless individuals

- The target serum cholesterol level is under 5.0 mmol/L (LDL cholesterol under 3.0 mmol/L). When considering indications for intervention the age and sex and total risk of the patient should be taken into account. (Those of working age are the most important group.) See Table 2 below.

Table 2. Hypercholesterolaemia in asymptomatic individuals

Serum cholesterol (mmol/L)	LDL cholesterol (mmol/L)	Risk of disease progression	Action

8.0 or higher	6.5 or higher	Greatly increased	Assess risk factors. Improve diet and change living habits. Control cholesterol levels in 2 - 3 mo. Drug therapy is indicated if values near the target levels are not reached. The probability of an inherited disorder is high. Relatives should be investigated.
6.5 - 7.9	5.0 - 6.4	Moderately increased	Assess risk factors and start dietary therapy. Control cholesterol levels in 6 mo. Further measures (drug treatment) according to outcome of dietary therapy and other risk factors. Hereditary disorders of lipid metabolism are possible (and should be treated in the same way as patients with serum cholesterol above 8 mmol/L).
5 - 6.4	3.0 - 4.9	Slightly increased	Counselling on healthy diet and assessment of risk factors. Further measures according to other risk factors. Control of serum cholesterol after about 5 years.

Elderly patients (> 75 years)

- There are no randomized prognostic studies in this age group.
- The biological age and the general prognosis should be taken into account when deciding on treatment.
- The principles of treatment are the same as in younger patients.

Related evidence

- There is little evidence that low or reduced serum cholesterol concentration significantly increases mortality from any cause other than haemorrhagic stroke. This risk affects only people with a very low concentration and even in these the risk is outweighed by the benefits from the low risk of ischaemic heart disease at least in patients with ischaemic heart disease (Level of Evidence=B; Evidence Summary available on the EBM web site).

- Aerobic exercise training produces small favourable changes in blood lipids (Level of Evidence=B; Evidence Summary available on the EBM web site).

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